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# INSTRUCTIONS

— FOR —

6-INCH 5-INCH 3-INCH  
GUN CAPTAINS

— ON —

## Armed Guard Duty



*"Constant Vigilance is the Price  
of Safety"*



MC:4632776

UNIVERSITY OF CALIFORNIA  
LOS ANGELES

JUL 21 1961

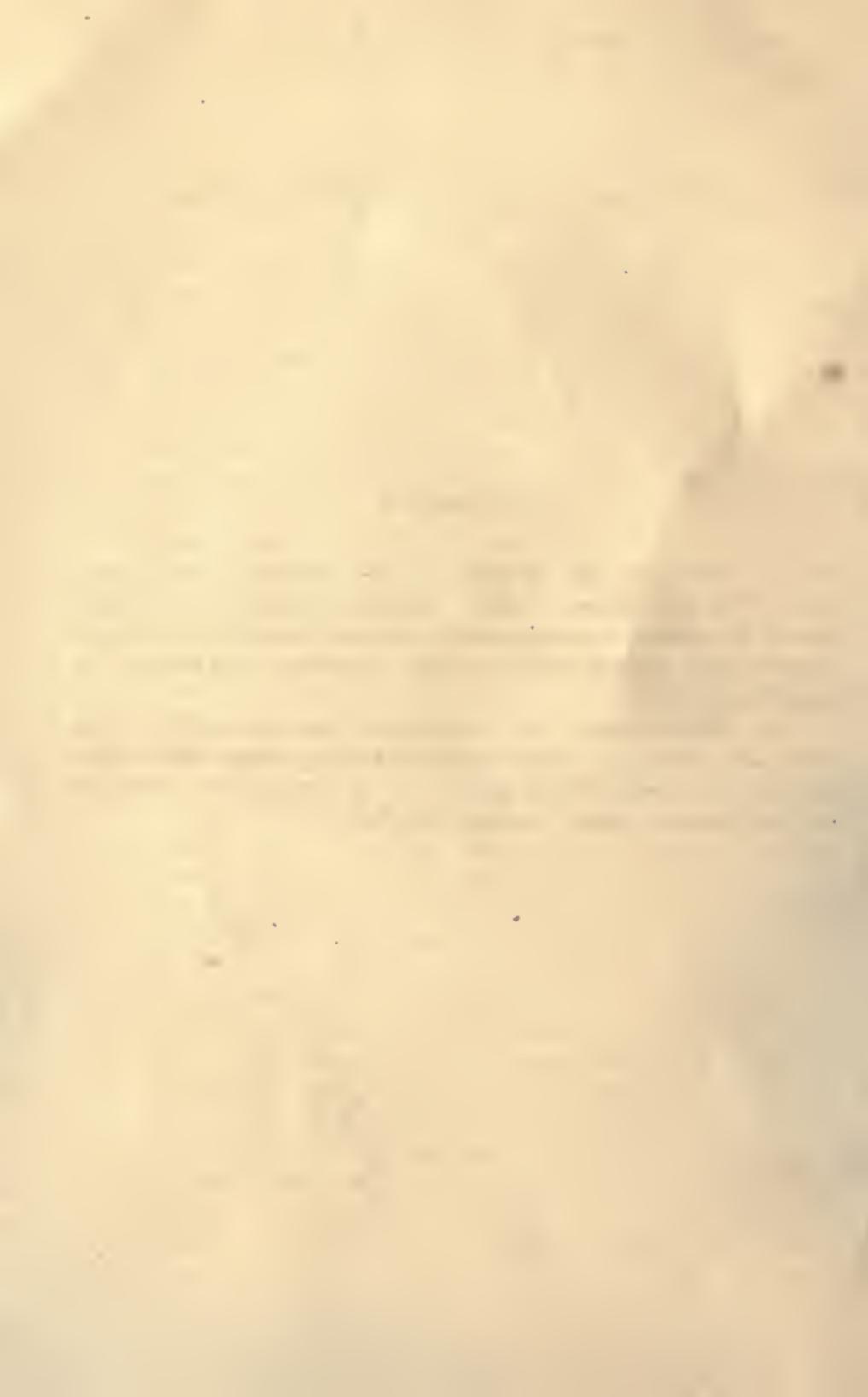
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## Foreword

1. This pamphlet is issued for the instruction and guidance of Armed Guard Crews. Nothing in these instructions should be allowed to conflict with orders or instructions you may receive from proper authority when reporting for duty as an Armed Guard.
2. Blank pages are provided at the end for list of gun crews and for notes. Make notes of all happenings that might assist future crews or be of interest to the service. Do not show this pamphlet to anyone outside the Navy.



## Chapter I

# Stations and Duties of 6" Gun Crews

**POINTER:** At pointers sight. Sees buzzer in place, takes off sight cap and provides lense paper. Checks up with trainer. Brings cross-wires on target. Coaches trainer on if necessary.

**TRAINER:** At trainers sight. Removes sight cap. Sees lense paper provided. Check up with pointer. Keeps vertical wire on target or in position to which pointer may coach him.

**SIGHTSETTER:** At sight. Wears phone. Tests out sights and sets same. Examines sight after each shot and resets if it has jarred out. Provides sight lights and buzzer. Tests out voice tube and buzzer. Sings out "SET" when range and deflection have been put on sight.

**GUN CAPTAIN:** Where he can best supervise the working of the crew. Sees everything provided and crew at stations. Report to battery officer when ready. Supervise work of loading. Sees safety precautions carried out. Sees powder bag loaded red end aft. Notices that gun returns to battery after each shot. Watches primer to see that it explodes when pointer closes firing circuit. Coaches pointer and trainer on target if necessary. In case gun captain is spotting for his own gun takes station a little behind and to windward of gun but within easy hail of same.

**PLUGMAN:** At operating lever of plug. Operates plug. Provides primers, belts and sponge for wiping off mushroom head. Inserts new primer and calls out "READY" each time gun is loaded and ready for firing.

**RAMMERMAN:** In rear of breech; provides sponge rammer. Rams shell home when same is placed in breech by first shellman using sponge rammer for this purpose. Uses spiral motion in withdrawing rammer to sponge out powder chamber. After each shot dips rammer in bucket of water.

**1st SHELLMAN:** In rear and left of breech. Provides bucket of sand. Receives shell from 2nd shellman and places same in gun as soon as breech is opened and loading tray in place. Steps clear of powderman as soon as shell has left his hands.

1st POWDERMAN: In rear and right of breech. Provides drinking water. Receives powder from 2nd powderman and as soon as rammer is withdrawn places same in gun and steps clear.

TRAYMAN: At left of breech. Holds loading tray. Fills gun tub. Places tray in breech as soon as it is opened. Removes tray when rammer is withdrawn.

2nd SHELLMAN: At shell supply in rear of first shellman. Provides knife for cutting slings from shell. Keeps first shellman supplied with shell.

2nd POWDERMAN: At powder supply in rear of first powderman. Provides spanner wrench for removing covers from powder tanks. Keeps first powderman supplied with powder. Is careful to see that the cover is not off more than one tank at a time.

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## Station and Duties of 5" Gun Crews

The stations and duties of a 5" gun crew are the same as for the 6".

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## Stations and Duties of 3" Gun Crews

POINTER: (Same as for 6").

TRAINER: (Same as for 6").

SIGHTSETTER: (Same as for 6").

GUN CAPTAIN: Where he can best supervise the working of the crew. Sees everything provided. Crew at their stations and reports to battery officer when ready. Supervises work of loading. Sees safety precautions carried out. Notices that gun returns to battery after each shot. In case he is spotting for his gun takes station a little behind and to windward but within easy hail.

PLUGMAN: At operating lever of plug. Operates plug. Sings out "READY" each time gun is loaded and ready for firing.

1st LOADER: In rear and left of breech. Receives fresh cartridge from third loader and places same in gun as soon as breech is opened and old case extracted. Is careful not to burr screw box in loading.

2nd LOADER: In rear and right of breech. Provides pair of loaders gloves. Removes empty cartridge case from gun as soon as breech is opened and throws same to one side. Steps clear of 3rd loader.

3rd LOADER: At ammunition supply. Provides knife for cutting lashings on ammunition boxes. Keeps first loader supplied with fresh ammunition.

The stations for the members of the guns crews are given in the order of their importance. In case you have not enough men in your crew to fill all stations start at the top of the list and fill as many as possible, then apply to the Captain of the ship for men to fill the remaining stations. Do not forget that these green men will require all the training possible and use every opportunity you can get for training them.

## Chapter II

# Preparing the Gun for Action

As soon as you report on board go to the gun assigned you and see that it is ready for firing. Do not take anyone else's word that the gun is all right. Unless the gun is ready you will not be able to use it when called on and might far better have stayed in the United States.

The following is a list of the most important items to be seen to. Check each one off as you finish it otherwise you may miss some.

Clean and oil slide.

Mark gun so you can tell that it returns to battery after each shot.

Inspect knife edges.

Oil trunnions.

Test training gear see all parts well set up. If there is much lost motion report it at once.

Test elevating gear and see all parts well set up. If there is much lost motion report it at once.

Clean sights.

Clean range dials and dry same.

Clean deflection dials and dry same.

Take out parallax and boresight, then see sights set up for a full due (boresight for range of about 2,000).

Adjust cross wire illumination.

Recharge battery.

Clean and set up on friction discs.

Inspect thoroughly breech mechanism, screw box and plug. See all parts well set up, inspect for and remove burrs.

Adjust gas check pad and split rings.

Clean primer vent and seat.

Inspect and clean firing lock.

Clean all contacts, then tape and secure same.

Test out all breast lamps and sight lights.

Test out all battle lanterns.

Examine and clean all primers.

Fire primer by battery and precussion.

Swab out gun.

Set up on all bolts and nuts.

See all split pins in place and secure.

Inspect rammer and loading tray and see in good condition.

Provide and fill gun tub (refill every morning).

Fill recoil cylinders (refill every morning).

Paint safety circle on deck.

Overhaul and test salvo latch.

Remove tompion.

Test out voice tubes, buzzers and sight lights.

Provide loose canvas for sights and keep them covered when not in use.

See that the following are provided and keep them near the gun at all times. See that all the crew know their location. Do not allow anyone to remove any of these articles from their usual place except for use on the gun.

Lense paper.

Sponge.

Sponge rammer.

First aid packet.

Tools.

Spare parts.

Primers.

Cotton for crew.

Binoculars.

Police whistle for use of gun captain.

## Chapter III

### Duty and Lookouts

If there is an officer in charge of the armed guard report to him immediately and receive your orders. If you are the senior man on board have all other gun captains report to you and put the following watches on the instant you leave the dock and keep them on until you are tied up on the other side.

Split each gun crew up into two watches and have them stand watch and watch. Have the hang-out for each crew in the immediate vicinity of their gun and do not allow any of them to leave it without their gun captain's express permission. Have their meals served there and also insist that they sleep there. Give standing orders that never more than two of the gun crew are to be absent from their stations at any one time.

Do not allow the crew to touch liquor under any circumstances. Allow no visitors around the gun. Keep the crew away from people you don't know.

Keep the shell and powder covered at all times but readily accessible. Be careful it does not get wet. Keep the gun covered as much as possible but be careful to see that it is never covered so that it cannot be gotten ready for action instantly. Assign a place for all spare parts, tools, primers, etc., see that the entire crew knows their exact location and that they are kept there at all times.

Have the pointers drill at least twice a day at pointing and training, and have the loading crew go through the motions of loading. If opportunity offers hold target practice allowing the pointers four or five shots.

Find out what life boat has been assigned your crew, see that they know where it is and that the boat is in a serviceable condition. Keep enough life preservers for the entire crew at the gun.

Insist that the ship be darkened at night and kept so. Send a man to inspect the ship each hour from sunset to sunrise. Allow no smoking on deck. A match under some conditions can be seen two miles and the glow from a lighted cigarette

a half mile.

Have some signal for general quarters that cannot be mistaken for anything else and see that every member on the armed guard knows what the signal is. Insist on promptness and speed.

Have the whole crew go on watch one hour before dawn begins to break and stay on until one hour after sunrise. Have them go on again one hour before sunset and remain until one hour after it becomes completely dark and unless the ship makes a decided change of course AFTER DARK, keep all the crew at guns for two hours. Morning and evening twilights are the most dangerous times of the whole day so insist on having all hands on the job at those times.

Have the men in the watch on deck but not on lookout keep awake and remain at the guns. During the night have yourself called every time a watch is relieved and make sure that the men coming on are wide awake before taking over the watch. Never allow a man of the watch on deck to leave the gun for any purpose whatever without being relieved by a man off watch.

Avoid all shipping, as a strange ship may be a German raider or a captured ship screening a submarine from your view.

German submarines can heave to submerged. Therefore avoid all floating objects as they may be (1st) floating mines or (2nd) objects attached to a submarine lying submerged.

Submarines have been known to tow dummy periscopes and also mines. If two periscopes are seen fairly close together shoot at the forward one.

A submarine exposes her periscope for about a foot when taking an observation and leaves it up for about fifteen seconds. Three observations are usually taken before firing a torpedo. Sea gulls have been known to draw attention to a periscope and also submarines have been known to mount dummy sea gulls on their periscopes. A wreck or abandoned boat is a favorite object for them to hide behind, so always avoid them carefully. Also the enemy has been known to place mine charges in abandoned boats.

It takes a submarine about 20 seconds to submerge.

All members of the armed guard should be instructed daily in the necessity of reporting everything seen whether on

watch or not. There is a case on record where a coal passer coming up on deck for a blow saw a submarine that had escaped the notice of the lookouts entirely.

Remember that your first duty is to keep the ship from being destroyed. In order to accomplish your duty the best precaution is an efficient lookout at all times and thereafter, rapid and accurate fire.

Work out plans of action for the various cases that you think may arise, such as different conditions of wind and sea and position of submarine when first sighted, and go over them repeatedly. Remember that when a submarine is sighted you must act instantly. A few seconds delay on your part due to indecision will probably be the difference between the ship's escaping and being sunk.

## Lookouts

No hard and fast rule can be laid down for the number of lookouts except that you can never have too many. Split the crews up into two watches and obtain as many lookouts as possible. A man should never be left on lookout more than one hour, and the stations for each gun crew should be in the immediate vicinity of their gun.

Give each lookout a definite arc to look through and arrange a system of relative bearings so that he can report anything sighted accurately and rapidly. Always have a lookout point with his arm at any object sighted. Impress on the lookouts the seriousness of their duty and the necessity for reporting everything they see instantly. See that an efficient system of communication is established from all lookouts to the Officer-of-the-Deck and that the Officer-of-the-Deck is promptly informed of all reports.

In order to make a successful attack with a torpedo a submarine tries to get at least one point forward of the beam of the target. From dead ahead to each beam is therefore the most dangerous sector and the one to which the majority of the lookouts should be assigned. When seen against the skyline the silhouette of a submarine is most distinctive. Lookouts should therefore be stationed as high and as near the water line as possible, the former to discover submarines at a distance and the latter those near by.

The following is thought to be the least number of look-outs that should be on at one time day and night. If you have extra men split the arcs given below and put them on watch.

One lookout from ahead to 45 degrees starboard bow.

One lookout from ahead to 45 degrees port bow.

One lookout from 45 degrees starboard bow to abeam.

One lookout from 45 degrees port bow to abeam.

One lookout from abeam to astern starboard side.

One lookout from abeam to astern port side.

One lookout in crow's nest from port to starboard beam around the bow.

Binoculars, while valuable, are not absolutely necessary for an efficient lookout. The main thing is to keep alert every minute of the time.

Always see that the men are warmly clothed before going on watch. Always insist on this as the weather may change before the man comes off watch again.

You may expect from the Captain the latest data regarding submarine areas, so called.

## Chapter IV

# Boresighting

In order to hit, the gun must be accurately boresighted. This should be done in quiet water and before the ship leaves the dock.

The following should be used as a guide to make sure that nothing has been overlooked.

Remove telescopes from holders, thoroughly clean holder and bearing surfaces on telescopes and replace with part stamped "UP" on telescope uppermost. Set up on holding down bolts on holders for a full due.

Open the plug and lash it back.

Put in breech diaphragm. Set up tight if there are adjusting screws, otherwise see that it is all the way in.

Wipe off the telescopes lenses with lense paper.

Put the telescope in the breech diaphragm, taking care that the threads are not crossed. Do not force it. If it does not start easily wipe off the threads.

Train the gun on the object to be used in boresighting focus the telescope and remove parallax.

Put in the muzzle disc, making sure that the small hole in the center is clear.

Bring the cross wires in the boresight telescope to the center of the hole in the muzzle disc by moving the adjusting serews on telescope.

Rotate muzzle disc through 90 degrees and look to see that the cross wires are still in the center of hole in muzzle disc. If they are, remove the muzzle disc. If not adjust again and keep up the above procedure until cross wires remain in the center of hole when disc is rotated through 90 degrees.

Set the sights at zero for range and 50 for deflection.

Station men at the boresight telescope, pointers telescope and trainers telescope. Have the man at the boresight telescope sing out "MARK" when his horizontal wire is on the target. Bring the pointers horizontal wire on by moving the RANGE SCALE.

If trainers horizontal wire is not on with pointers and boresight telescope come up on the adjusting screw on the outboard end of the trainer's telescope holder and move the trainer's sight until all three telescopes are on together, then set up tight on adjusting screw.

Set the range dial to read zero by coming up on the adjusting screws and moving either the dial or the pointer arm until the pointer on the dial points to zero.

Check up to make sure nothing has moved.

Have the man at the boresight telescope sing out "MARK" when his vertical wire is on the target. If pointer's vertical wire is not on with the boresight, bring the pointer on by moving the DEFLECTION DRUM. If the trainer's vertical wire is not on with the pointer's and boresight, come up on the clamp screw on the under side of the trainer's telescope when by moving the small thumb screw on the side of his holder, the trainer's telescope can be put on the target at the same time as the pointers and boresight.

Set up tight on clamp screw.

Take sight wrench and come up on deflection drum and move it till pointer on drum marks at 50.

Set up tight on deflection drum.

Check up on both the horizontal and vertical wires, having each man go to each station and check.

Go over all holding down bolts and adjusting screws and make sure they are all set up for a full due.

Run the sight up and down several times and move the deflection drum 10 or 15 knots each side of 50 several times.

Check up both the horizontal and vertical wires again having each man go to each station and check as before.

If all cross wires are not on after this, start at the beginning and go ahead all over again as you have forgotten to set up on some screw.

If cross wires are on:

Put in muzzle disc and see if boresight telescope cross wires have moved. If they have you will have to center them again and re-boresight. If they are still in the center of holes in muzzle disc the gun is correctly boresighted.

Remove muzzle disc and put away boresight outfit.

Guns should be boresighted at about 2000 yards range.

Both wires should be brought on the same object, that is, do not use one object for the horizontal wire and another for the vertical.

After the guns are boresighted be very careful to see that no one fools with the sights. Never allow any object of any kind to be placed on them. Never allow the crew to lean against or hold on to the sights for any purpose whatever.

You will have to be very careful about this as you will find it is one of the sailorman's favorite amusements.

## Chapter V

# Gun Telescopes

Gun telescopes are very delicate instruments and must be handled with great care to insure that they are at all times in adjustment and ready for use. You cannot be too careful of them or watch them too closely. Always remember that if your telescopes go out of adjustment the gun is practically useless.

### Telescope Adjustments

All telescopes are fitted with cross wire illumination for night firing. To adjust the illumination remove the protecting cap on the after outboard side and move the four adjusting screws the cap uncovers. When in proper adjustment the cross wires should stand out clearly.

If on looking through the telescope objects do not stand out clearly and distinctly the telescope has parallax. This is removed as follows:

Come up on collar nut on under side of telescope just abaft the holder. Back off locking ring that goes around telescope just abaft the part in holder and move the after end of the telescope in or out until the object looked at appears clear and distinct. Hold telescope carefully in place and run locking ring up as far as it will go. Set up on collar nut as hard as you can using your fingers on wing nut wrench only. Never use more pressure than your hand on wing nut wrench as if you do you will distort telescope tube and make the instrument useless.

In case telescopes are fitted with checking eye pieces these should always be pulled out as far as they will go when actually firing the gun so that all the light will be reflected directly back to the man at the sight. To pull out the checking eye piece come up on the collar nut on underside of the check eye piece pull out the eye piece as far as it will come and set up on nut. It will be noticed that with checking eye piece

pulled out it is impossible to see through it. Pulling out the checking eye piece does not throw the telescope out of bore-sight adjustment.

## Care of Telescopes

All parts of the sights must be kept free from all grit and rust and a light coat of oil must be kept on all bright steel parts.

All telescopes are stamped "UP" on the side that must go uppermost in the telescope holder.

In case telescopes are not mounted they must be kept in a warm dry place. Never keep a telescope in a damp place.

In wiping the lense always use lense paper and never anything else. Never use alcohol to wipe off a lense as the lenses are made up of two or more pieces of glass cemented together and alcohol will soften the cement.

Always keep the front caps on when telescopes are not in use.

If possible get a piece of blotting paper and place inside of cap. This will absorb any moisture that would otherwise collect on the lense. If possible make light wooden plugs and cover same with blotting paper and insert in after ends of telescopes when not in use. Be careful to see that inner end of plug does not touch lense.

Never allow anyone but the gun crew to touch the sights under any circumstances and never allow any of the gun crew to make adjustments except by your express permission and in your presence. It is far better to make all the adjustments yourself.

## Chapter VI Spotting

The object of these rules is to give each gun captain a uniform method of controlling the fire of his gun together with the greatest chance of hitting the target in the least possible number of shots. Gun captains should study these rules until they become second nature and must use them at all times no matter how near the actual range is known.

As soon as the target is picked up give the bearing to the guns, describing it as accurately as possible, estimate the range as nearly as you can without taking more than a few seconds to do so and send this range to sightsetters.

Always before you give the order "Commence Firing" get a report from each gun, they are on the target and sights set. As soon as the range is on the guns and the guns on the target, fire one shot.

If first shot is over drop range 1000 yards and fire again.

If second shot is short raise range 500 yards and fire.

If third shot is over drop range 250 yards and fire.

If fourth shot is short raise range 125 yards and fire.

If fifth shot is over drop range 75 yards and you should score a hit in range.

In case the second shot lands on the same side of the target as the first, drop or raise the range as the case may be 1000 yards and repeat this until the shot lands on the opposite side of the target. In case any two of the subsequent shots land on the same side of the target, raise or drop the range by the amount last given and in the same direction. The object of the above system is to straddle the target with each pair of shots when halving the error each time you will eventually score a hit.

## Deflection

The first deflection used will be that due to the speed of your own ship only. 50 is the zero point for deflection, left deflection is below 50 and right deflection above.

Keep sights set for the speed of your own ship at all times. Guns firing only on the port side of the ship will be kept set with left deflection and those firing only on the starboard side with right deflection. Guns mounted in bow or stern that can be fired to both sides will be kept set with deflection 50.

If first shot goes to the right move deflection left by 20 knots.

If second shot goes to the left move deflection right 10 knots.

If third shot goes to the right move deflection left 5 knots.

If fourth shot goes to the left move deflection right 2 1-2 knots.

On fifth shot move deflection one knot left to hit.

In case the first shot fired goes left reverse the above procedure, that is move deflection 20 knots to the right.

In case the second or any subsequent shot lands on the same side of the target as the one preceding, move the deflection in the same direction as before but by one half the amount and keep this up until shot lands on the opposite side of the target.

## Thumb Rule for Deflection

Target bearing from zero to 2 1-2 points on the bow or stern deflection is 1-3 speed of own ship.

Target bearing from 2 1-2 points on bow or stern to 3 points forward of abaft beam; reflection 2-3 speed of own ship.

Target bearing from 3 points forward to 3 points abaft beam; deflection full speed of own ship.

In case the target is coming directly towards you bring your shots short and keep the range until the target is seen to run through the splashes. At first over drop range 500 yards and repeat.

In case the target is going directly away from you reverse the above.

Never spot a bad shot. It is very easy to tell whether or not a shot has been correctly pointed. In case of bad shots leave sights set as they were and fire again as soon as possible.

Never try to rush your pointers. You will not only get them rattled but will lose valuable time. The first thing to do is to get pointers on target then fire slowly and carefully until you get the range and deflection, and then speed up and put the shots in as fast the guns can be loaded and aimed.

In case you once get on the target and then get off again slow the fire drop or raise the range 500 yards to bring the next shot on the opposite side of the target from the last and then repeat the procedure for originally finding the range raising or lowering the sights by one half the previous amount each time. The same applies to deflection but make your first change 5 knots instead of 20.

Always keep a record of the ranges and deflections sent to the guns. Carry a pencil and a pad for this purpose; no other.

If the target is a long way off, 3000 yards or above, try and send your first shot over. This will show the submarine she is within your range and may scare her off. Fire slowly and deliberately. If the submarine is close aboard have your first shot short and keep as many short as possible. At short range a short shot may throw water on the periscope and will in any case confuse the enemy. A shot going over does no good except for spotting purposes. Fire as rapidly as possible.

Be careful about your deflection especially with guns mounted to fire on either side. A large number of misses have been made due to the deflection being set on the wrong side of 50.

When firing abeam the ship's roll can be used to increase the range by firing when the ship is at the extreme point of the roll away from the target. Likewise when firing ahead or astern the pitch of the ship can be used in the same way.

If the gun you are using is mounted close to the water it may be that the pointers cannot see the target while it is perfectly visible to you in a higher position. In this case have the pointer keep his horizontal wire on the horizon and the trainer keep the gun trained in azimuth on the number of degrees (relative bearing) that you give him. In spotting a shot in this way raise or lower the range as usual but instead of sending down deflection in knots order the trainer to put the gun on a certain number of degrees on azimuth circle on mount. The first change should be 10 degrees right or left depending on whether the first shot was to the left or right of the target.

## Chapter VII Casualties

The following are only some of the casualties that may occur. Every gun captain should keep in his note book a list of all casualties that occur on his gun with the remedies taken and also a list of the casualties happening to other guns that he may hear about.

### Missfires

Miss fires may occur from a variety of causes some of which are as follows:

Pointer fails to press firing key.

Broken firing connection.

Firing wire cut on recoil or counterrecoil of gun.

Plugman fails to prime gun.

Fuzed or split primer.

Primer vent foul.

Faulty firing connections or plug not fully closed.

Remedies—If firing electrically hook lanyard and fire by percussion. If this fails reprime, examine primer, make sure firing pin is intact. Repeat until gun fires. During following load, inspect vent and firing connections.

### Hang Fires

Hang fires occur principally from two causes:

Powder charge loaded wrong end towards breech.

Powder charge too far in gun.

Remedies—Report to battery officer and receive orders.

If you are senior man on board proceed as follows: Insert new primer and fire again. Repeat this procedure until gun fires.

On extracting primers from a hang fire examine carefully to make sure they have fired.

Broken powder bag.

Remedy—Throw overboard. Use new charge. Get all slivers

of powder that may be on deck away from gun.

Plug will not close.

Remedy—Inspect screw box and remove any slivers of powder or other foreign articles that may be in there.

Back out hinge pin, clean off and oil.

Plug will not open.

Remedy—Extract old primer, if on a 6" or 5" gun. Examine salvo latch and make sure that it has tripped.

Gun fails to return to battery.

Remedy---Elevate and depress gun through full arc a number of times. Hit breech above plug with end of rammer or piece of wood.

Cross wires of telescope jar out.

Remedy---Have pointer coach trainer on.

Sight lights fail.

Remedy---Use flash light.

Range dial pointer jars loose.

Remedy---Use range scale on sword.

Deflection drum jars loose.

Remedy---Set up on drum and have spotter bring gun on target again.

Shell will not seat.

Remedy---Gun using fixed ammunition place cartridge to one side, inspect gas check slope and remove burrs. Try another cartridge.

Gun returns to battery slowly.

Remedy---Oil slide, inspect for burrs.

Gun will not train.

Remedy---Wipe off training rack with dry rag and set up on friction discs.

Gun will not elevate or depress.

Remedy---Set up on friction discs. Inspect to see that all gear is properly connected up.

## Chapter VIII

# Safety Orders

1. No naked light shall ever be taken into a magazine or other compartment containing explosives of any kind.
2. Attention is invited to the possibility of firing screw breech mechanism guns by percussion with the plug swung home but not rotated or locked. If the guns are fired electrically and have contacts fitted so that the plug must be fully rotated before the circuit is completed, it is not possible for an accident of this sort to happen.
3. When a gun has been loaded, the breech mechanism shall be closed without delay.
4. When a gun which has been fired is still warm when reloaded, and it later becomes necessary to remove the charge, the gun need not be fired but should be unloaded. When it is apparent that the service of the gun will not be resumed within a reasonable time, the powder unloaded will be dumped in distilled water and kept in that condition until turned into a naval magazine at the first opportunity.
5. In preparing a battery for firing, the battery officer shall assure himself that the tompion is removed from each gun and that the bores are clear.
6. Never unlock or open the breech of a gun when a live primer is in the lock.
7. Never hook the lanyard to the trigger of the lock until the breech plug is closed and locked and the gun primed. The lanyard shall be hooked just before cocking the lock.
8. Never unlock or open the breech plug with the lock cocked, or with the lanyard hooked to the trigger.
9. At the command "cease firing" the primer shall be withdrawn from the locks of B. L. guns and the case removed from R. F. guns. If a crew leave a gun at any time, the gun will be left in the condition of "cease firing."
10. The possible danger of a serious accident due to opening the breech too soon after a hang fire requires the con-

stant exercise of the utmost prudence and caution whenever a miss fire occurs.

11. Whenever a gun pointer presses the firing key or pulls the lock lanyard and the gun fails to fire, a hang fire must be regarded as probable and until examination of the extracted primer discloses the fact that the primer itself failed to fire, no distinction can be made between the case of a miss fire, due to failure of the primer to ignite and a miss fire, due to failure of the charge to ignite after the primer has functioned properly.

12. As there is present, after firing, in the chamber of all guns an inflammable gas, which, under certain conditions constitute a danger in igniting the exposed charge while the gun is being loaded for the next round, the sponging of all broadside B. L. guns using charges that are unprotected by metal cases is deemed to be necessary. In case of guns of this class the combined sponge and rammer will be used, with the bristle dampened with water. The sponge will be entered in the chamber immediately following the shell, and will be shoved home as far as the shell when seated will permit, and then will be withdrawn. When the gun is sponged in this manner, it is not possible for inflammable gases or bits of burning powder bags to remain in the powder chamber to endanger the ignition of the charge.

13. When firing any powder-bag gun, it shall be the duty of a member of the crew to look through the bore of the gun immediately after the opening of the breech and note when the bore is clear, announcing the condition by calling out sharply and distinctly "bore clear." In order to guard against the danger of flarebacks, the charge shall not be exposed at the breech of the gun until after the announcement "bore clear,"

14. The sponging of guns using fixed ammunition, where the charge is protected by a metal case, is not deemed necessary, but before stowing the empty cartridge cases below, steps must be taken to free them from all inflammable gases. This can best be done by laying the cases on their sides and testing each one for the presence of gases by inserting a lighted taper in each case as far as the bottom, thus setting fire to any inflammable gases or by washing the cases out with soap and water.

15. Under no circumstances shall the material of the cartridge bags or strengthening tapes be added to without

authority. Should it be necessary to stiffen the charges, additional cloth or tape will not be used, but if necessary, the old cloth or tapes will be retied or replaced by new material similar to the old cloth or tape.

16. There shall not be exposed (removed from the gun tanks) at one time more than one charge for each gun and then only as necessary to supply the demand.

17. Especial care shall be exercised to see that all sections of powder charges are entered in the chamber with the ignition (RED) ends toward the breech.

## Chapter IX

# Smoke Boxes and Depth Charges

Smoke producing apparatus is supplied to assist ships in escaping from hostile vessels by making a smoke screen to render invisible the ship itself and its movements. Behind such a screen the ship may maneuver to avoid gun fire and to affect its escape.

Two types of apparatus are supplied:

(a) The fixed type, or smoke funnel, for burning on board ship.

(b) The floating type, or smoke box for throwing overboard, or if desired, for burning on board the ship.

The object of the smoke boxes is to spread and keep a screen between your ship and the enemy. The maneuver necessary to accomplish this will depend largely upon the relative positions of your ship and the enemy with reference to the wind.

Always endeavor to enlarge the screen by dropping a new series of boxes near the edge of the original cloud. Use two, three or four boxes to a series. It must be realized that the smoke screen will not generate at the instant the apparatus is put in use, therefore the first alterations of course should be small so as to be sure and maintain the source of smoke between yourself and the enemy until such time as a screen of sufficient height is formed to allow of greater freedom of movement.

Watch the smoke cloud carefully and note that it is high enough to hide your masts. If it is not, trice some smoke boxes up the masts and set them off.

In all cases, although increasing to the utmost possible speed; the greatest care must be taken to make as little boiler smoke as possible, as it is found that the smoke from the ship's stacks is liable to show up the position of the ship in the smoke screen, as the smoke screen is either white, gray or yellow.

It is very unlikely that the submarine will follow you into the smoke screen but will very probably make for the weather corner of the screen and to windward of you.

Smoke boxes are put up in wooden boxes about 15" x 15" x 10". Instructions for use are labeled on the top of each box under a wood or tin panel lightly tacked on, which should be torn off and instructions read before using the box.

The box is marked—"THIS SIDE UP," and the tin panel is marked—"Pull this off before use and read instructions underneath."

The smoke funnel consists of a cowl mounted in a bucket, the bucket being provided with a drain plug.

The charge for the smoke funnel consists of 32 pounds of stick phosphorus contained in water in a water tight drum. To operate the device the drum is opened by means of a can opener or such other means as may be provided and the contents thereof are dumped into the mouth of the funnel. The bucket should be half filled with water. The charge may be kept in the funnel during the run of the vessel through the danger zone, provided the drain plug is kept closed and the phosphorus is kept covered with water.

When it is desired to produce the smoke cloud the drain plug is opened, draining the water off. The phosphorus will smoulder and ignite upon exposure to the atmosphere, but a more rapid and satisfactory ignition is obtained by throwing some burning waste into the mouth of the funnel.

The apparatus gives off a heavy white smoke which will settle on the water and rise to a sufficient height to obscure the ship. A charge will burn for 25 to 35 minutes. When it is desired to stop the smoke close the drain plug and pour water down the funnel.

The funnel should be trimmed down wind in order to effect a good draft.

## Safety Precautions.

The men opening and handling the drums of phosphorus should wear heavy gloves to prevent their being burned.

Considerable flame is emitted from the apparatus when in full blast and inflammable materials should not be stowed near it.

If the charge is kept for any length of time in the funnel frequent inspection should be made to insure that the apparatus

is full of water, that there is no leakage, and that the phosphorus is not smouldering due to leakage of water and exposure of the phosphorus to the air.

## Depth Charges

Depth charges are used when either the wake or the periscope of a submarine is seen and the ship maneuvers to pass over or ahead of the wake. All depth charges should be dropped from the stern of your ship and timed so as to hit the water just ahead of where the wake of the submarine will pass.

When issued the charges are set for a depth of 40 feet. Do not change this setting.

If the submarine forces you to stop by gun fire and then comes close alongside the depth charge may be dropped overboard, set in this case for 25 feet, when the submarine is close aboard. This will of course result in serious injury to your own vessel as well as the submarine, but will be necessary and advisable under the circumstances. This procedure must not be carried out, however, if there has been any evidence or indication of surrender.

## Safety Precautions

Never release the charge from any other position than the stern of the vessel.

Always have 5 knots or more headway on before releasing the charge, at 25 foot setting 7 knots or more is preferable.

Remember that the charge, through insensitive without detonator, is most sensitive with detonator and must not be roughly handled when detonator is in place.

Keep charge at all times away from fire.

Never take lock pin out until ready to fire.

If in danger of rear-end collision and detonator is in place, throw mine overboard, retaining lock pin in place.

With detonator in place, detachment of buoy and pulling on cable will fire mine. Do not overhaul mine in this or any other manner when detonator is in place.

Do not expose mine to blast of guns, especially when detonator is in place.

## Chapter X

# Service Rifle, Revolver and Machine Guns

Rifles, revolvers and machine guns are furnished armed guard crews for possible use against submarines close alongside the ship and for protection and possible destruction of submarines when crews are in open boats. A well directed fire against a submarine close alongside, on the surface with her crew on deck would undoubtedly seriously injure her and might cause her to sink. This fire would, however, draw the fire of the submarine and should not be resorted to unless there is a chance of keeping the submarine crew from manning their guns.

### Service Rifles

Before and after all drills and exercises, open the chambers and inspect the pieces to see that none are loaded.

Never point a rifle, loaded or unloaded, at any living object, unless it is desired to kill it.

Never point a loaded rifle in any direction where it could do any damage if it went off, remembering the long range of the service rifle.

Never load a rifle at practice until ready to commence firing.

Never carry a rifle with a cartridge in the chamber, except in exceptional cases, which must be especially ordered by the officer in charge.

Never allow water to get on the rifle. Keep all parts well oiled.

Be careful of the sights. A light blow may throw them out of adjustment.

### Service Revolvers

Never point a revolver, loaded or unloaded, at any living object unless it is desired to kill it.

Never point a revolver in any direction where any damage would result if it went off.

Never touch the hammer or trigger when the revolver is not pointing up or at the object aimed at.

Never carry a revolver in the hand or holster unless there is an empty chamber under the hammer.

Remember that nearly all accidents occur with a revolver that was "not loaded."

Never allow water to get on the revolver. Keep all parts well oiled.

## Machine Guns

These guns are very delicate instruments and easily get out of adjustment. You will have special instruction before leaving on armed guard duty and the points learned then must be remembered and followed closely.

In firing watch the loading closely as the shells will jam if they do not enter at just the right place. When firing at an object close aboard do not bother to look over the sights. Keep your head well up and note the splashes, when by swinging the gun slowly, you can bring the splashes on the target.

During the trip across keep the gun mounted and on deck where it is readily accesable. It may come in very handy if a submarine should come up close alongside. Take it in the boat with you if you are forced to abandon ship, but throw it overboard in case you are captured and taken aboard an enemy vessel.

The safety precautions for the rifle and revolver also apply to machine guns.



## Gun Crew Muster List

Name	Rate	Position
		Gun Captain
		Pointer
		Trainer
		Sightsetter
		Plugman
		Trayman
		1st Shellman
		1st Powderman
		Rammerman
		2nd Shellman
		2nd Powderman
		3rd Shellman
		3rd Powderman











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